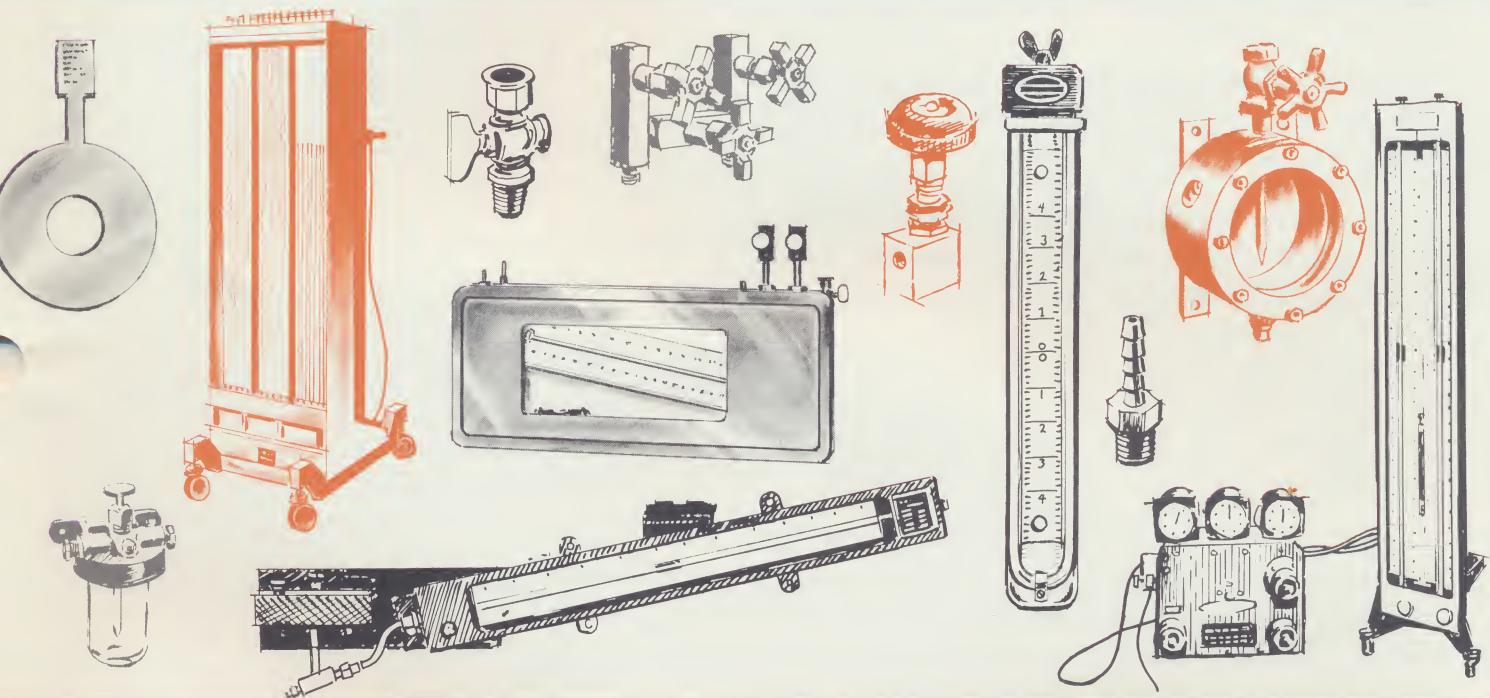


MERIAM

MANOMETERS
AND OTHER INSTRUMENTS



**ALL TYPES
SPECIAL UNITS
ACCESSORIES**

THE MERIAM INSTRUMENT COMPANY

MERIAM MANOMETERS

INTRODUCTION

This catalog is presented to aid instrument users in the selection of the proper manometer to handle their requirements. It is sectionalized and indexed for easy reference and covers all product categories and includes ranges, pressures, accessories, and important special features. The index below will serve to locate readily the manometer required.

Prices on manometers and accessories listed in this catalog may be obtained from your distributor or from the Meriam Instrument Company.

This catalog is designed to cover the basic requirements of all manometer users. The Meriam Instrument Company is known for the many special manometers it has built. For information on special manometers or more information on the standard line covered here, please inquire. We are always ready to provide additional detailed information and to offer skilled engineering and application assistance.

Physics Review: Pressures are termed absolute pressure, gauge pressure, and differential pressure. Zero pressure absolute (approached in outer space) is fundamental zero. Starting from the absolute zero of outer space, the weight of earth's air blanket causes an increasing pressure as one descends. This absolute pressure is called barometric pressure and is measured by an absolute pressure manometer popularly called a barometer.

The barometric pressure at any point can change because of winds and sun. Barometric pressure is zero gauge pressure. Gauge pressure below zero gauge pressure is called vacuum and is given as inches of mercury manometer vacuum.

Differential pressure is clear—it is the difference between two pressures. In industry the accurate measure of differential pressures is often most important, as it is the most widely used means to accurately measure flow. A manometer is the simplest and most accurate instrument for absolute pressures, gauge pressures, and differential pressures.

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10AA25WM

PRODUCT CLASS OPERATING PRESSURE MOUNTING STYLE

NOMENCLATURE

Meriam products are identified by model numbers and parts carry part numbers. The first three digits in a model number classifies the product (for efficiency, the third digit is often omitted but is understood).

Letters are subdivisions of above classes AA, EA, EB.

Last digits indicative of maximum operating pressure. (10 = 100 PSIG), (15 = 150 PSIG), (25 = 250 PSIG), (350 = 3500 PSIG), etc.

Suffix letters signify mounting.

Letters	Mounting	Description
WM	Wall Mount	With brackets or channel holes for mounting to wall
TM	Table Mount	With base mounting stand
FF	Flush Front	Separate flush panel bezel with entire instrument behind panel board with full panel cutout
FB	Front of Board	Instrument body on front of panel—portions and some accessories behind with simple panel drilling only.
PM	Pipe Mount	Equipped with 1" NPT female socket for mounting on pipe nipple
HM	Hook Mount	With bracket for hooking onto angle frame or base.

The mounting styles described above are applicable to most Meriam manometers. Be sure to check specific model description for mounting availability before ordering.

RANGE

Range of a manometer is generally given as the maximum vertical height of the fluid column in inches. In some cases the range is given as the height of an equal pressure column of water and the specific gravity of the manometer fluid is then specified.

Unless purchased otherwise most Meriam manometers are supplied with scale reading inches and tenths of manometer fluid. Other standard scales are listed below, and special scales can be furnished to meet any requirement.

Standard Scale Graduations for Most Models

- Scale A Inches and tenths of manometer fluid
- Scale B Inches of water pressure using mercury (dry basis)
- Scale C Pounds and tenths using mercury (Spec. D2913)
- Scale F Centimeters and millimeters of manometer fluid
- Scale G Inches and tenths of water pressure using D-2673 Red Oil sp. gr. 0.827
- Scale H Inches and tenths of water pressure using Meriam D-8325 Blue Fluid sp. gr. 1.75
- Scale I Inches and fifths of water pressure using Meriam D-2883 No. 3 Fluid sp. gr. 2.96

Duplex scales available for well type manometers only (exceptions noted in model descriptions).

- Scale A/C Left Side: Inches and tenths of manometer fluid
Right Side: Pounds and tenths using mercury
- Scale A/B Left Side: Inches and tenths of manometer fluid
Right Side: Inches of water pressure using mercury (dry basis)
- Scale B/C Right Side: Inches of water pressure using mercury (dry basis)
Left Side: Pounds and tenths using mercury

Special Direct Reading Scales

Direct reading scales can be furnished in practically any units—English, or Metric or per calibrations.

For flowmeter applications, direct reading scales can be furnished in terms of any flow units such as: standard cubic feet per minute, gallons per minute, etc. For tank gauge applications scales can be graduated in terms of liquid height or capacity in gallons or pounds, or in units of specific gravity of measured fluid.

MANOMETER RANGE CONVERSIONS TO VARIOUS EQUIVALENT SCALE GRADUATIONS

Manometer Range In Inches		Scale A	Scale B	Scale C	Scale F	Scale G	Scale H	Scale I
		Inches And Tenths Of Manometer Fluid	Inches of Water Using Mercury Calibrated Dry	Pounds And Tenths Using Mercury	Millimeters Of Manometer Fluid	Inches of Water Using Meriam Spec. No.	D-2673 Red Oil 0.827 Sp. Gr.	D-8325 Blue Fluid 1.75 Sp. Gr.
U Type	Well Type							
6	6	6	81.4	2.9	152	4.9	10.5	17.8
10	—	10	135.7	4.9	254	8.2	17.5	29.6
—	12	12	162.8	5.9	305	9.9	21.0	35.6
15	—	15	203.5	7.3	381	12.4	26.3	44.5
—	16	16	217.1	7.8	406	13.2	28.0	47.4
20	20	20	271.4	9.8	508	16.5	35.0	59.3
24	24	24	325.7	11.7	610	19.8	42.0	71.2
30	30	30	407.1	14.7	762	24.7	52.5	88.9
—	35	35	474.9	17.1	889	28.9	61.3	103.8
36	—	36	488.5	17.6	914	29.7	63.0	106.7
40	40	40	542.8	19.6	1016	33.0	70.0	118.6
50	50	50	678.5	24.5	1270	41.2	87.5	148.2
60	60	60	814.2	29.4	1524	49.5	105.0	177.9
80	80	80	1085.6	39.1	2032	66.0	140.0	237.2
100	100	100	1357.0	48.9	2540	82.5	175.0	296.5

OPTIONAL ACCESSORIES

The accessories included in this catalog are designed to simplify the manometer installation and to make use of the instruments more convenient and service free. Be sure to select your accessories carefully, noting pressure ratings. They are designed for highest performance . . . minimum maintenance . . . and proper installation.

Contact us for specific details on the accessories required for your application.

HOW TO ORDER

To help you order your Manometer:

SPECIFY:

1. Quantity
2. Range
3. Model Number
4. Mounting
5. Material (Wetted Parts)
6. Scale Graduations
7. Indicating Fluid
8. Accessories
9. Shipping Instructions
10. Purchase Order Number



Characterized by having both legs of nearly the same diameter, the U-type manometer indicates pressure as the vertical distance from the top of the fluid in one leg to the top of the fluid in the other. For ease of reading, scales on the U-type manometers are graduated from a center zero toward each end and the distances from zero are added. Should the two distances be different because of slight tube bore differences, there is no loss of accuracy.

MOST WIDELY USED IN GENERAL APPLICATION... EASY CLEANOUT

MODEL 10AA25

Consists of a formed glass "U" tube supported by a cast metal body. The patented "cleanout" feature simplifies cleaning the instrument or replacing fluid without disturbing the permanent piping. The standard head, in semi-steel, has $\frac{1}{4}$ " NPT female side pressure connections (other connections available) and can easily be separated from the tube and body . . . simply remove one wing nut. Stainless steel, brass or hard rubber heads are available.

Range in Inches: 6, 10, 15, 20, 24, 30, 36, and 50.

*Mounting: WM—All Ranges
FF—Except 36" and 50"*

TM—Accessory 912A

Max. Line Pressure 250 PSI

MODEL 10VA25

is a CONTACTOR "U" tube Manometer built on the body of the MODEL 10AA 25 with added internal adjustable contact rods automatically making or breaking a low voltage electrical circuit. The terminals are enclosed in a connection box with $\frac{1}{2}$ " conduit connections and a dust-tight cover. Standard head is P.V.C. When manometer fluids of high resistance are used such as water, the contactor manometer is used with the Model 70AA12 Manotac—See page 18.

912A
Table Mount Stand



MERCURY FILLED ABSOLUTE PRESSURE GAUGE SEALED TUBE

MODEL 11AA10

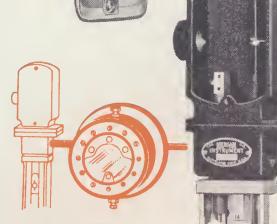
is an ABSOLUTE PRESSURE GAUGE that indicates pressure upward from absolute zero. Indicating tube is supported by cast metal body.

The left leg of the formed "U" tube is sealed, while the right leg is connected to the measured pressure. The "U" tube is highly evacuated, then factory filled with dry, high purity, air free mercury. A restriction protects the tube against surges and a removable tube seal permits shipment of the gauge or replacement tube while filled with mercury. Semi-steel head is standard. Furnished standard with centimeters and millimeters scale. (Scale "F")

*Range in Inches:
5 10 14 19 23 29 36 50
127 254 356 483 584 737 914 1270*

Range in Millimeters:

*Mounting: WM—All Ranges
FF—except 36" and 50"
TM—Accessory 912A*



933A10WM
Line Trap

MODEL 11VA10

is a CONTACTOR absolute pressure gauge built on the body of the MODEL 11AA25. Fused-in contact rod on evacuated leg and adjustable contact rod on open or pressure leg automatically makes or breaks electrical circuit at absolute pressure set point. Terminals are enclosed in connection box with $\frac{1}{2}$ " conduit connections and a dust-tight cover.

Range through 36"



LONGER RANGE..REMOVABLE HEADS..EASY CLEANOUT

MODEL 20AA25

is a "U" Type Manometer with two straight tubes packed top and bottom by removable heads. It has the Meriam patented "cleanout" feature and an adjustable scale that extends full body width behind the tubes. Standard heads are semi-steel. Stainless steel, brass or hard rubber are available.

Range in Inches: 6, 10, 15, 20, 30, 36, 50, 60, 80, and 100.

Mounting: WM

TM—Accessory 912A. Ranges up to 30"

Max. Line Pressure 250 PSI



MODEL 20VC25

is a Contactor "U" tube manometer built on the body of the model 20AA25 with contact rod in each leg. Electrical connection to lower head as well as rods provides two circuit contacts or SPDT for pressure switch application etc.

Range through 50"

TYPICAL ACCESSORIES



MANOMETERS

SERIES 100 and 200

U TYPE



CAST ALUMINUM BODY . . . LARGE BORE TUBE . . . CLEANOUT HEAD

MODEL 10BA10

is a large bore "U" Tube Manometer. Any Manometer indicating fluid used produces a flat meniscus. The patented "cleanout" feature permits separation of the tube and body from the head for maintenance without disturbing the permanent piping. The "U" tube is protected on three sides by a *cast aluminum body*. An adjustable scale on the glass tube centerline has bold graduations and large type numerals which provide *accurate and distant readability*.

The standard semi-steel "cleanout" head has $\frac{1}{4}$ " NPT female pressure connections. Stainless steel, brass or hard rubber are also available.

Range in Inches: 10, 20, and 30.

Mounting: WM, TM Accessory 912A

Max. Line Pressure 100 PSI

Accessory 912A



STEEL BODY . . . LARGE BORE TUBES . . . DOUBLE CLEANOUT HEADS

MODEL 20BA10

is a straight tube "U" type Manometer with two large bore tubes producing a flat fluid meniscus. The patented "cleanout" heads permit easy removal of the instrument for cleaning or replacing fluid without disturbing the permanent piping. A steel channel supports the tubes and the full width, adjustable scale extends behind both straight tubes. Large figures and bold graduations permit accurate and distant readability. Semi-steel heads are standard. Stainless steel, brass and hard rubber are also available.

Range in Inches: 10, 20, 30, 40, 50, 60, 80, and 100.

Mounting: WM and TM

Max. Line Pressure 100 PSI

932R10 Trap Accessory



FOR HIGHER OPERATING PRESSURES . . . RUGGED DUTY

MODEL 20DA40

is a straight tube "U" type manometer that is used for higher operating pressures (400 PSIG). The rugged instrument body has bar stock end blocks that are welded to a formed steel channel. The heavy wall annealed tubes are gland packed and positioned behind a transparent protective cover. The scale is adjustable from the front and extends full width behind the tubes. End blocks are stainless steel or steel.

Range in Inches: 10, 20, 30, 40, 60, 80, and 100.

Mounting: WM, FF, TM

932A35 Line Trap Accessory



INVERTED U TYPE ROLLING SCALE . . . SELF COMPENSATING

MODEL 22CA35

is an inverted "U" type Manometer which uses the flowing fluid as the indicating fluid. The rolling, steel tape scale, graduated in inches and in tenths permits direct reading measurements. Pressures are connected to the lower legs of the "U" while a balancing pressure is applied at the top with air or inert gas.

Range in Inches: 30, 40, 60, 80, and 100.

Mounting: WM, TM, FF

Max. Line Pressure 350 PSI



943F100 Valves and Piping Accessory

SECTIONAL FOLDING DESIGN . . . LARGE BORE . . . PORTABLE

MODEL 20GA10

is a 100" range straight tube large bore "U" tube Manometer... IDEAL FOR FIELD SERVICE. Portability is provided by light weight aluminum construction and is designed with a hinge to fold in half.

Range in Inches: 100



Portable Unit.

Additional Information on Specifications, Accessories and Prices Available on Request

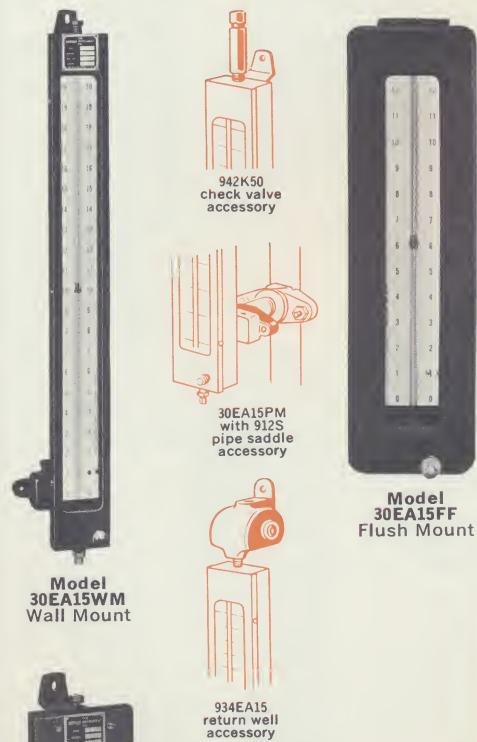
Available in single and multi-tube models, Meriam Well Type Manometers feature outstanding accuracy in fast, direct-from-the-scale readings of pressure, vacuum, differential, flow, and similar variables over a broad range of applications. There is no adding of distances above and below a zero line. All scales are graduated to correct for the drop in well level, and scales are full width of instrument.

GENERAL APPLICATION, LOW COST . . . STURDY

MODEL 30EA15

is a dependable low cost, well type manometer with many features of the more expensive instruments. Wetted parts are semi-steel or brass suitable for 150 psi operating pressure.

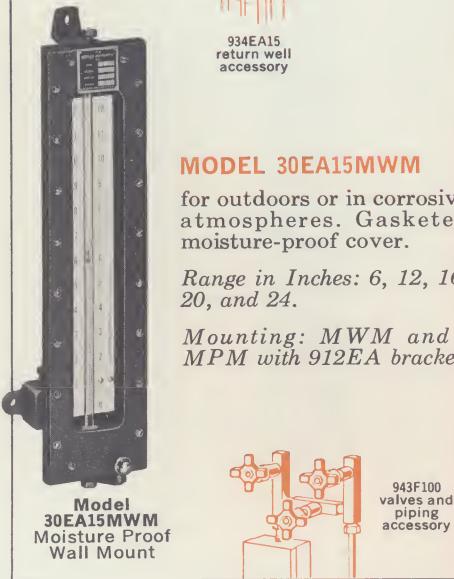
*Range in Inches: 6, 12, 16, 20, and 24.
Mounting: WM, FF, and PM.*



MODEL 30EA15MWM

for outdoors or in corrosive atmospheres. Gasketed moisture-proof cover.

*Range in Inches: 6, 12, 16, 20, and 24.
Mounting: MWM and MPM with 912EA bracket.*



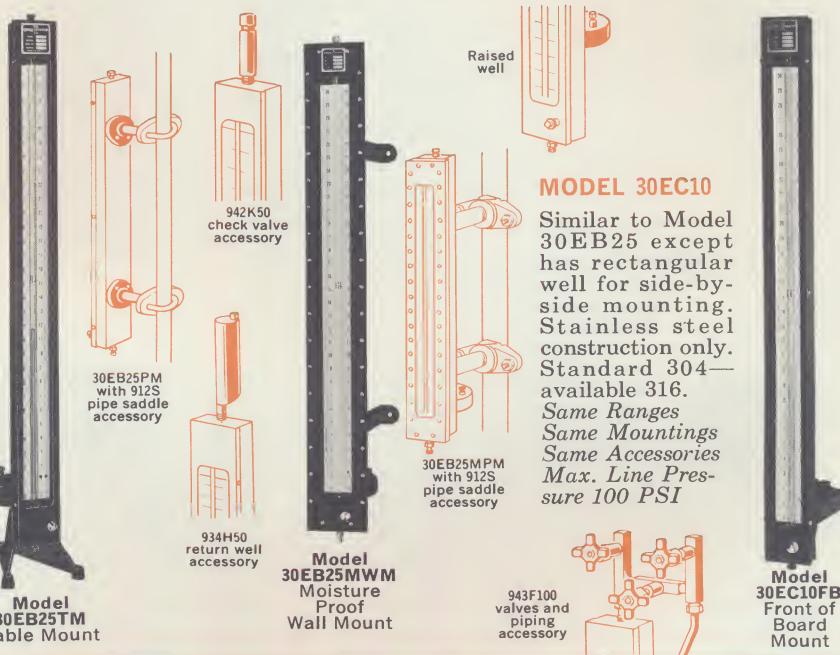
WIDE CHOICE OF RANGES, MOUNTINGS AND ACCESSORIES

MODEL 30EB25 (Max. 250 PSI)

is the most practical type manometer for the broad range of manometric measurements. It is ruggedly constructed, the case is all welded steel with a steel channel body and extra heavy wells. Wetted parts are stainless steel. Duplex and special scales can be furnished.

Range in Inches: 12, 20, 30, 35, 40, 50, 60, 80, and 100.

Mounting: WM, FB, FF, TM, PM, HM, moisture proof MWM, and MPM.



FULL SCALE . . . MODEL 30EF25

FIXED VERNIER

is a precision instrument with readable accuracy to .01 inches. A full scale vernier reading of any pressure indication is observed by aligning nearest scale graduation so it is tangent with the fluid column meniscus and observing main scale displacement. A wide range of scales and accessory parts is available.

*Range in Inches: 30, 40, 50, and 60.
Mounting: WM, FF, FB, TM, HM, and PM.*

MODEL 30VA25

is a manometer precision pressure switch providing an INDICATION and CONTROL for electrical alarms, etc. It provides accuracy, precise repeatability and the same sensitivity regardless of range. Using mercury it can provide direct low voltage switching. Using water and Meriam Manotac Model 70AA12 it can detect pressure changes of .005".

*Range in Inches: 12, 20, 30, 40, and 60.
Mounting: WM, FF, FB, TM, HM, and PM.*

MANOMETERS

SERIES 300 | WELL TYPE



ABSOLUTE PRESSURE MEASURE . . . BAROMETRIC COMPENSATOR SCALE

MODEL 30FD10

is a raised well type manometer for direct absolute pressure measurement. The main scale with 3" adjustment has an integral barometric compensation scale graduated for three inch barometric range. Aligning the fixed pointer and barometric scale to the prevailing barometric pressure establishes the fluid reference level; as a result all pressure applications are automatically indicated in absolute values. Scale graduations in inches and tenths or centimeters and millimeters are standard.

*Range in Inches: 35, 40, 50, 60, 80, and 100
Model 30FD10A—scale starts at zero to range less 3"*

Model 30FD10B—scale starts at 10 to range plus 7"

Mounting: WM, FF, TM, FB, HM.



CONDENSER VACUUM GAUGE . . . PRECISION TUBING . . . VERNIER

MODEL 30EG25

is designed for condenser or other vacuum measurements which require accurate readability to .01 inches in the 26 to 31 inch vacuum range. The 35" stainless steel 30EB25 is modified by adding a precision bore tube and a five inch adjustable vernier scale arrangement with parallax eliminator. Scales are graduated in inches and tenths or centimeters and millimeters (no duplex).

Range in Inches: 35.

Mounting: WM, FF, TM, HM, PM.

ABSOLUTE PRESSURE GAUGE . . . MERCURY FILLED

MODEL 31EC10

is an absolute pressure measuring manometer with a mercury-filled, sealed tube. The mercury fluid reference level is always at barometric pressure and applied pressure or vacuum is measured directly in absolute values. Compensation or adjustment is not necessary. The manometer, as received, is ready for immediate service without preliminary preparation. Scale graduations in inches and tenths or centimeters and millimeters are standard.

Range in Inches: 6, 12, 20, 30, 35, 40, and 60.

Mounting: WM, FF, TM.



PRECISION BAROMETER . . . MERCURY-FILLED . . . 5" VERNIER

MODEL 31EG10

is a mercurial barometer similar in construction features to Model 31EC10 but incorporates 5-inch vernier in the barometric range. Precision bore tubing permits readings to a hundredth of an inch. A mirror eliminates parallax error. Vernier range either 26 to 31 inches (66 to 79 cm) or 23 to 28 inches (59 to 71 cm). Internally mounted thermometer has 0-120°F range (no duplex scales).

Range in Inches: 35.

Mounting: WM, FF, TM.



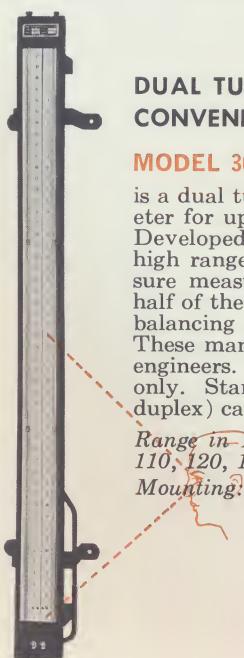
DUAL TUBE . . . HIGH RANGE . . . CONVENIENT AND ACCURATE

MODEL 30FE35

is a dual tube principle well type manometer for up to 350 psi operating pressure. Developed and patented by Meriam for high range reading convenience, all pressure measurements are observed on one half of the instrument. No step ladders or balancing on boxes for high readings. These manometers are specified by safety engineers. Wetted parts are stainless steel only. Standard or special scales (not duplex) can be supplied.

Range in Inches: 50, 60, 70, 80, 90, 100, 110, 120, 130, and 150.

Mounting: WM, FB, FF, TM.



DUAL TUBE . . . DIRECT READING . . . ABSOLUTE PRESSURE MEASUREMENT

MODEL 30FG35

is a dual tube direct reading, raised well, well type manometer similar to 30FE35 but for absolute pressure measurement. Meriam's patented dual tube principle provides reading convenience of high manometer ranges. All pressure measurements are observed on one half of the instrument within eye level. The adjustable main scales have integral 3" barometric compensating scales. Scales are graduated in inches and tenths or centimeters and millimeters (no duplex).

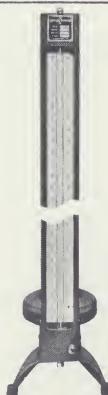
Range in Inches: 50, 60, 80, and 100.

Model 30FG35A—scale starts at zero

Model 30FG35B—scale starts at 10 inches

Mounting: WM, FF, TM, FB.

*Additional Information on Specifications,
Accessories and Prices Available on Request*


**EXTRA LARGE BORE TUBE...
MORE PRECISE**
MODEL 30EK10

is a well type manometer with an extra large bore tube to provide a fluid indicating column with a very flat meniscus. Principal advantage is easier and more accurate readability with any fluid. Wetted parts are stainless steel.

*Range in Inches: 30, 40, 50, 60, 80, 100.
Mounting: WM, FF, TM*

NOTE: When extreme accuracy is desirable specify MODEL 30EK10 PT, which has a precision bore tube. MODEL 30EK10PTV features a precision bore tube and a vernier scale arrangement for precise readability to hundredths of inches. Range is limited to 30, 40, 50 and 60 inches.


**INVERTED WELL... HIGH SENSITIVITY
...SELF COMPENSATING**
MODEL 32EB25

is an inverted direct reading well type manometer that uses the flowing liquid as the indicating medium. It eliminates contamination, compensates automatically for fluid density changes and provides increased sensitivity. The low and high pressure connections are at the bottom with the balancing air pressure source connection at the top. Accessories and special scales are available.

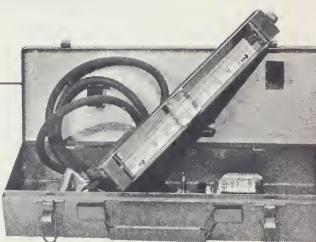
*Range in Inches: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, and 130.
Mounting: WM, FF, TM, FB, HM, PM.
Max. Line Pressure 250 PSI*

943F100 Valves
and Piping
Accessory

**PORTABLE...
FIELD CALIBRATION**
MODEL 35JA10

is a portable manometer that is indispensable to the field service instrument engineer. Highly accurate and readable to .02 inches of water differential using Hg it is ideal for testing recording gas flowmeters, setting pressure regulators etc. It is all stainless construction with precision bore tubing and has a magnifier with a hairline and mirror to eliminate parallax errors. Combination vent and seal off valves prevent loss of the indicating fluid in the manometer. Kit includes manometer with level, hose and nipples, indicating fluid, mounting clamp and carrying case.

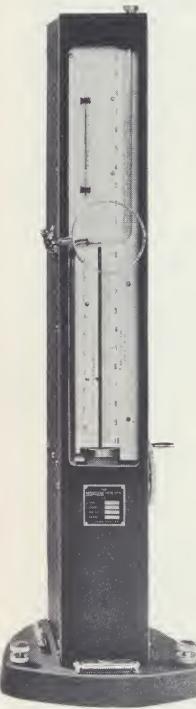
*Range in Inches: 8, 15, and 23.
Ball and Socket Mounting Clamp*


**VERY HIGH PRESSURE...
MANOMETER OR FLOW METER**
MODEL 30FA350

is a high pressure well type manometer designed for differential pressure measurements in systems operating to 3500 psi. It is extremely rugged in construction but has simple maintenance features. It is used in research and in industry to measure the pressure drop across valves and other items in high pressure systems. In high pressure boiler or pump systems the manometer is permanently installed in parallel with recording meters to monitor and insure their calibration.

A three valve manifold and return well is supplied optional. Standard scale is inches and tenths. *Range in Inches: 20, 40, and 60.
Mounting: PM*

Show with optional 943F400 valves and piping.


**CALIBRATING STANDARD...
ACCURATE...HIGH SENSITIVITY**
MODEL 34FB2

Micromanometer is an extremely sensitive, precision instrument for measuring low pressures to an indication of ".001" of water. It operates on the "Null Balance" principle where a known pressure value is balanced by the value to be measured by returning meniscus to static point. Pressure, vacuum or differential pressure in 20 psi max. systems can be accurately measured using the 10" or 20" range micro-manometer. Simple and convenient to operate it is widely used in the laboratory and for production test work and calibration requiring sensitivity and accuracy. It is supplied with low surface tension indicating fluid, Meriam D-2930, a magnifier and a mercury thermometer. Scales are calibrated in inches and tenths.

*Range in Inches: 10, and 20.
Mounting: Table Mounting only.*


MODEL 36EA2

is a small, pocket size, 3 inch portable, non-spill mercury filled pressure gauge manometer complete with venting petcock. The field serviceman has a dependable, accurate instrument for measuring pressure up to 22 oz. or to 40 inches of water using mercury.

MERCURY PRESSURE GAUGE MANOMETERS

MODEL 36EA4

is a compact 6 inch direct reading mercury filled pressure gauge manometer. It is non-spill and makes a useful portable tool box instrument. Furnished complete with venting petcock it can be permanently installed. The deep etched duplex scale graduated in pounds and ounces or inches of water using mercury provides at-a-glance readability.

MODEL 36EA6

is a static pressure measuring instrument with $\frac{1}{8}$ " NPT pressure connection out bottom for convenience. Differential pressure can also be measured. Scale graduations in inches and tenths or duplex graduations in inches and tenths and pounds and tenths are standard.

Range in Inches: 8, 12, and 16.



Meriam manometer tank gauges accurately indicate depth, volume or weight of liquid stored in tanks. They are reliable and easy to install. Tanks can be underground or elevated, vented or pressurized or remotely located. They operate on the HYDROSTATIC BALANCE principle where air pressure is equally applied to the dip tube in the tank and to the gauge. When the air is purged out the discharge opening in the dip tube, the gauge column stabilizes at a scale reading in terms of tank liquid content.



For the utmost in accuracy and convenience the Model 30TA3WM and Model 30TC10WM tank gauges have large bore tubes giving a nearly $\frac{1}{4}$ " dia. liquid column for bold, easily read indication. They have extruded aluminum bodies (can be mounted side by side) and transparent covers protecting the tube and removable metal scale. By sliding the cover upwards special markings can be penciled on the blank right side of scale.

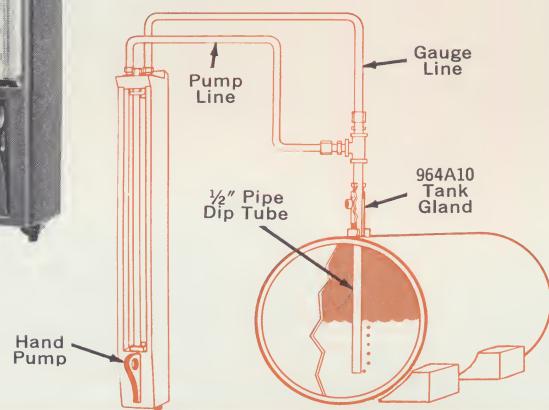
INTERMITTENT PURGE BUILT-IN MANUAL AIR PUMP

MODEL 30TA3WM

is an intermittent purge tank gauge with a large capacity pump operated from the front with recessed, self-retracting handle. The pump is operated before each reading.

Range in Inches: 20, 35, and 50.

Mounting: WM



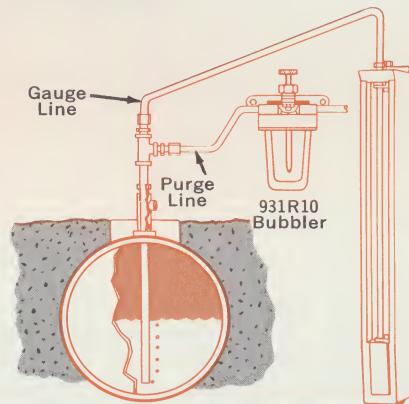
CONSTANT PURGE CONTINUALLY READING

MODEL 30TC10WM

is a continuous purge tank gauge using separate source, controlled purge air admitted to tank gauge system at top of dip tube. Recommended accessory: Bubbler for purge control.

Range in Inches: 20, 35, and 50.

Mounting: WM



$$\text{Tank Gauge Range in Inches} = \frac{\text{Max. tank Liquid Depth in Inches} \times \text{Specific Gravity of Tank Liquid}}{\text{Specific Gravity of Gauge Fluid}}$$

(Choose Next Larger Standard Range)

Tank dip tube bubble hole generally two inches above tank bottom to avoid sludge: hence scale starts two inches above zero.



964A10 TANK GLAND

(1" Male NPT) for $\frac{1}{2}$ " Pipe Dip Tube. Has $\frac{1}{4}$ " female outlet for pressurized tank equalizing line.



MULTIPLE TUBE TANK GAUGE

MODEL 33KC35

is typical of instrument provided for indicating liquid levels of a number of tanks . . . at one convenient location. Most manometer models are applicable to both head metering and purge balancing techniques.

Range in Inches: 12, 20, 30, 40, 50, 60, 70, and 100.

Mounting: WM, FF, and TM. (Two to Twenty Tubes.)

REQUEST RECOMMENDATIONS AND QUOTATIONS By Giving the Following:

1. Approximate size and shape of tank and whether horizontal or vertical.
2. What fluid is in tank and maximum depth of fluid.
3. What scale is to show . . . gallons, depth, pounds, etc.

Additional Information on Specifications, Accessories and Prices Available on Request

**TWO MANOMETER SYSTEMS
IN ONE ENCLOSURE**

MODEL 33KA35-2

is a two tube well type manometer with two separate and complete manometer systems in a single enclosure. Two different manometer fluids or two different scale graduations make the instrument more flexible and versatile in application. Either or both wells can be fabricated at any required position for pressure and vacuum applications. Accessories and special scales are available. No duplex scales.

Range in Inches: 10, 20, 30, 40, 50, 60, 80, and 100.

Mounting: WM, FB, FF, TM.

Max. Line Pressure 350 PSI



**MULTIPLE TUBE . . . 2 TO 12
INDICATING COLUMNS . . .
FIXED POSITION WELLS**

MODEL 33KB35—(No. of Tubes)

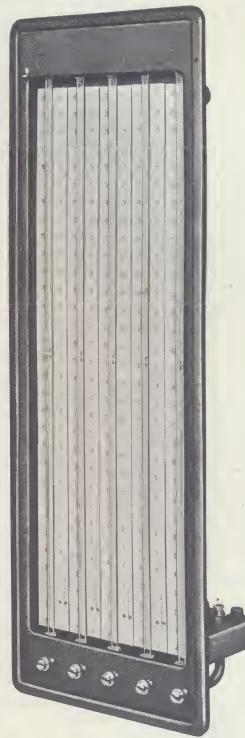
is a multiple tube well type manometer with individual, fixed position wells. A single compact case encloses from 2 to 12 separate and complete manometer systems. Measuring complex pressure distribution or multiple pressure relationship is a simple matter. Duplex scales or raised wells as required can be furnished which make the instrument more flexible for many applications. Accessories and special scales are available.

Range in Inches: 12, 20, 30, 40, 50, 60, 70, and 100.

Mounting: WM, FF, TM, FB.

Max. Line Pressure 350 PSI

For more compactness and choice of 2 to 20 tubes refer to model 33KC35 shown on page 9.



COMMON WELL . . . MULTIPLE TUBE MANOMETERS

For Simple Measurement of Pressure Distribution in Complex Systems



MODEL 33WA35 (No. of Tubes)

is a multiple tube common well manometer. Well is adjustable in 5" increments over the instrument range. Four, Six or Ten tube units are available. Generally one of the tubes is used as a vent to atmosphere for constant reference of the well fluid level. Standard scales are graduated inches and tenths, with zero at top. No duplex scales.

Range in Inches: 40, 60, 80, and 100.

Mounting: Rear of Board.

Max. Line Pressure 100 PSI



MODEL 33MA35-10RB

is a multiple tube common well manometer. It has TEN pressure indicating tubes PLUS a static vent tube for constant reference of the well fluid level. The well is infinitely adjustable over the entire instrument range. An inclined manifold feature rapidly bleeds air entrapment and eliminates cycling. For 350 psi operating pressure. Standard scales graduated inches and tenths. Zero at top. No duplex scales.

Range in Inches: 40, 60, 80, and 100.

Mounting: Rear of Board.

MANOMETERS

MULTIPLE TUBE SERIES 300 | WELL TYPE

MULTIPLE TUBE... BACK LIGHTED PANEL MANUALLY ADJUSTABLE COMMON WELLS

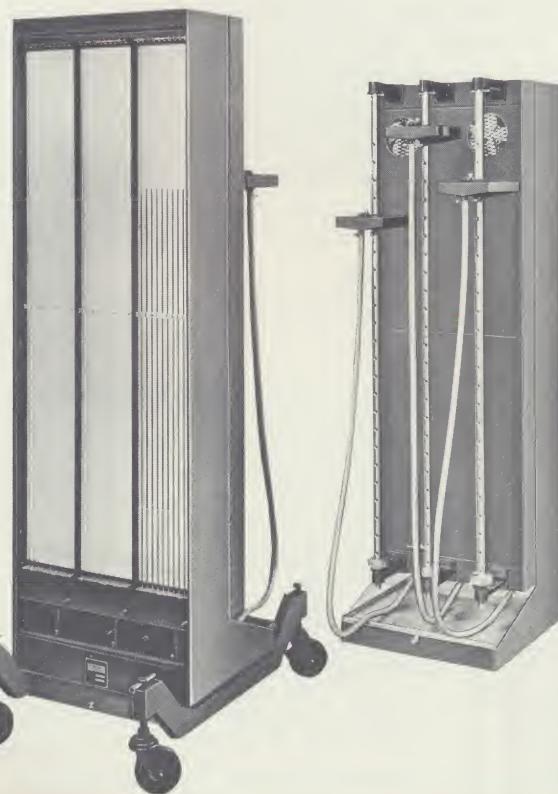
MODEL 33MB35 (No. of Tubes)

Manometer panel is an illuminated unit of 3, 4, or 5 banks of ten tube common well, well type manometers. It is designed for simple measurement of pressure distribution in complex systems. Dynamic pressure relationships can be speedily evaluated and recorded by camera. The unit can be floor mounted or furnished with wheels. Each common well is infinitely adjustable over the entire instrument range. Good lighting behind translucent scales with indicating tubes coplanar to graduations simplifies photographic recording without parallax errors. Standard scales are graduated inches and tenths with zero at top.

Range in Inches: 60, and 100.

Mounting: Floor or Portable Cart.

Max. Line Pressure 350 PSI



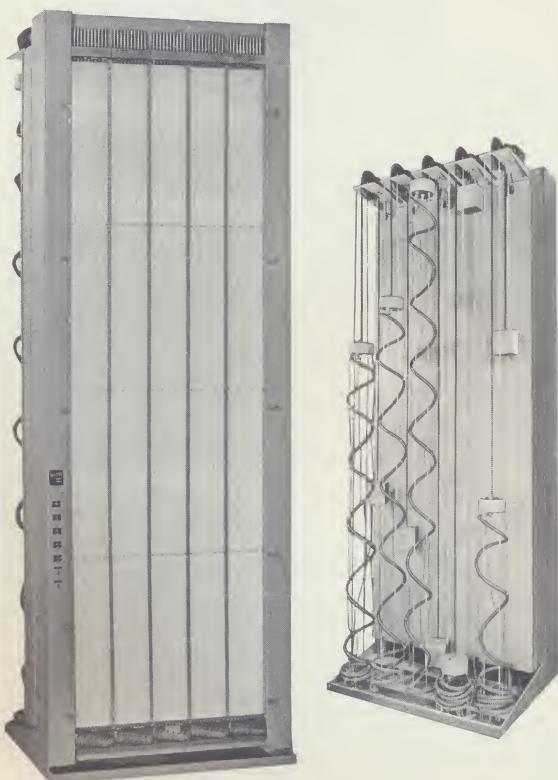
MULTIPLE TUBE... BACK LIGHTED PANEL ...MOTORIZED ADJUSTABLE COMMON WELLS

MODEL 33MD35 (No. of Tubes)

is a multiple tube manometer with motorized adjustable common wells for each group of ten tubes. Panels are made in 30, 40 or 50 tubes and are back lighted for full range. These units are ideal for production testing or research facilities. All controls are on the front panel and limit switches prevent over-travel of the wells. It incorporates the Merriam inclined manifold to prevent air bubbles and cycling. Indicating tubes are coplanar to scale graduations which are graduated inches and tenths, with minus one at top to zero to plus 120.

Range in Inches: 120. Max. Line Pressure 350 PSI

Mounting: Floor only.



PRESSURIZED MANOMETER SYSTEM HIGH RANGE ACCURACY

MODEL 33PB35

is a pressurized arrangement of well type manometers. This unit provides means of reading static pressures of 100 to 300 PSIG from liquid columns approximately 100 inches tall.

These high pressures, heretofore considered impractical in manometers, are reached by using the maximum pressure range of one manometer stage as the zero reference pressure of a second stage manometer, etc. through as many stages as necessary to read the maximum total pressure required.

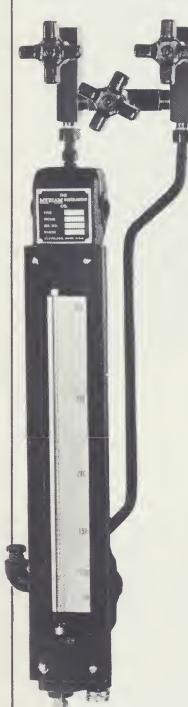
This is a panel mounted system complete with three or more 100" manometer tubes, air filters, gauges and pressure regulators as well as pressure switches, solenoid valves and pilot lights. An outside air source is required. All wetted parts are stainless steel.

Range in Inches: 200, 300, 400, 500, and 600.

Mounting: Panel Assembly.

Additional Information on Specifications, Accessories and Prices Available on Request

Meriam specially designed manometer flow meters are widely used for metering air, oil, gases, water, steam, and other fluids. With orifice plates and flanges, venturii, or other differential pressure producers they make a simple, low cost meter installation. Since they use a liquid column for indication they are extremely accurate and inherently dependable. There are vertical and inclined models (Page 15) for large flows and low flows and for moderate or high line pressures. The differential has a square root relation to the rate of flow and the meter flow range is a full $3\frac{1}{2}$ to one.



WIDE APPLICATION MODEL 30ED25

is of semi steel construction for use with mercury or light gravity indicating fluids. It has a built-in return well for protection against flow surges. Its three-valve manifold assembly permits easy zero check and maintenance. Special direct reading flow scale included. Specify. For line pressures to 250 psi.

Range 12 inches or 160 inches of water using mercury calibrated dry.
Mounting: PM or FF.

MODEL 30ED50

is similar to Model 30ED25 except is more rugged for operation under line pressures up to 500 psi.

Range in Inches
9 15 22
121 200 300

Range in inches of water pressure using mercury calibrated dry.

Mounting: PM or FF

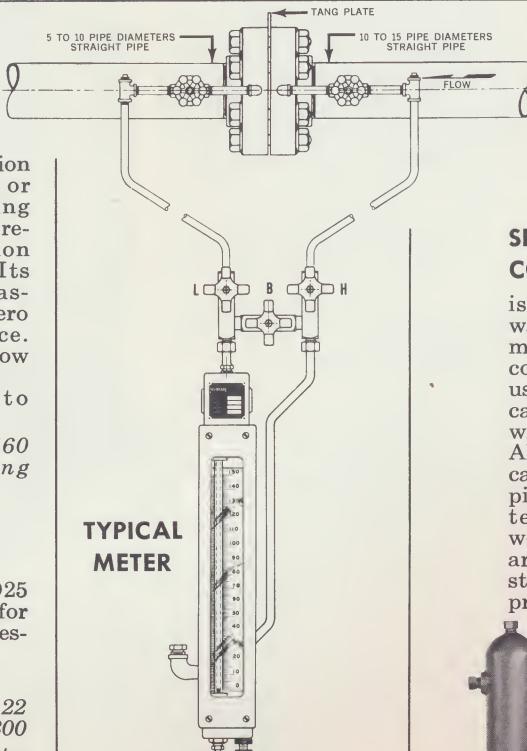
FOR HIGHER LINE PRESSURES

MODEL 30EL120

is of stainless steel construction with heavy steel body and gauge glass indicating column for line pressures up to 1200 psi. The scale is full width of body and carries precision graduations and bold black figures for ease of reading. High and low pressure connections are $\frac{1}{2}$ " female NPT. Model 443F400 (Page 21) is the three valve control manifold accessory.

Range in Inches 15, 20, 30, 40, 50, and 60.

Mounting: PM

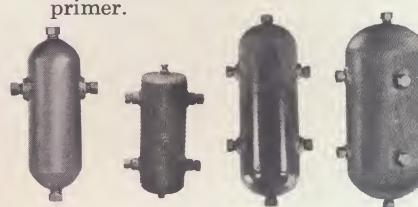


Pipe line may be above meter as shown or below meter or vertical. For steam or similar flows, seal pots should be used. The upstream side of orifice flange is connected to the meter well. By-pass valve is open as high and low pressure valves are slowly opened. By-pass valve is then slowly closed to start meter indicating.

SEAL POT OR CONDENSATE CHAMBER

is used to provide a constant water head on each side of a flow meter involving steam or other condensable vapors. It is also used to isolate manometer indicating fluid from the process fluids with a sealing liquid.

All Meriam seal pots are fabricated from Grade A seamless steel pipe. Each unit is cold hydraulic tested to over twice its rated working pressure. All connections are $\frac{1}{2}$ " NPT furnished with solid steel plugs. The finish is red oxide primer.



SPECIFICATIONS

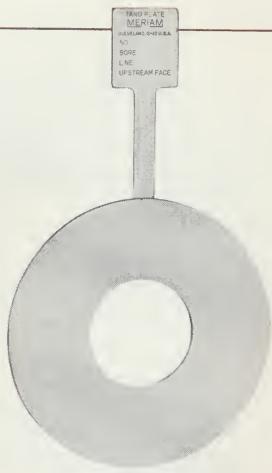
Model Number	Diam.	Length	End	Side	Max. Oper. Pres.
953AA75	3"	10 $\frac{1}{2}"$	2 ($\frac{1}{2}"$ NPT)	2 ($\frac{1}{2}"$ NPT)	750 psig
953BA50	4"	10"	2 ($\frac{1}{2}"$ NPT)	5 ($\frac{1}{2}"$ NPT)	500 psig
953BB75	4"	14 $\frac{1}{2}"$	2 ($\frac{1}{2}"$ NPT)	4 ($\frac{1}{2}"$ NPT)	750 psig
953CA75	6"	14 $\frac{1}{2}"$	2 ($\frac{1}{2}"$ NPT)	6 ($\frac{1}{2}"$ NPT)	750 psig

"PACKAGED" FLOWMETER UNITS

PACKAGED UNIT SELECTION TABLE

Line Size	Packaged Unit Number with 30ED25PM	Packaged Unit Number with 30EA15WM	Maximum Flow GPM
2"	FS-1 FS-2	FS-15 FS-16	50 125
2 $\frac{1}{2}"$	FS-3 FS-4	FS-17 FS-18	150 170
3"	FS-29 FS-30	FS-37 FS-38	200 250
4"	FS-5 FS-6 FS-7	FS-19 FS-20 FS-21	250 350 450
5"	FS-31 FS-32 FS-33	FS-39 FS-40 FS-41	450 600 800
6"	FS-8 FS-9 FS-10	FS-22 FS-23 FS-24	600 800 1000
8"	FS-11 FS-12	FS-25 FS-26	1250 1500
10"	FS-13 FS-14	FS-27 FS-28	1800 2900

Additional Information on Specifications, Accessories and Prices Available on Request

**MERIAM TANG PLATE ORIFICE**

Orifice plates are primary element differential pressure producers for rate of flow indication. Engineered for each job, the orifice diameter is precision bored to exact tolerances with a sharp lead edge to assure extreme accuracy. Orifice bore data are stamped on the extension handle. The handle is specifically designed to permit easy storage without damage to the orifice bore. Standard Meriam TANG plate orifices are $\frac{1}{8}$ " thick 304 stainless steel.

Special plates in monel, brass, cadmium plated steel and other materials can be furnished. Plates are available for every size listed here.

- MODEL 951A25** Used with 250 lb. semi-steel or brass threaded orifice flanges.
- MODEL 951B30** Used with 300 lb. forged steel orifice flanges.
- MODEL 951C15** Used with 150 lb. forged steel companion flanges.
- MODEL 951D15** Used with 150 lb. brass water tube flanges.

TO ORDER ORIFICE PLATES . . . SPECIFY

- | | |
|--------------------------------------|----------------------------------|
| 1. QUANTITY | B. Type of Gas |
| 2. MODEL NUMBER | 1. Temperature |
| 3. LINE SIZE | 2. Pressure |
| 4. MATERIAL | 3. Sp. Gr. @ 60°F. |
| 5. FLOWING FLUID and CHARACTERISTICS | 4. Sp. Gr. @ flowing temperature |
| A. Type of Liquid | |
| 1. Temperature | |
| 2. Sp. Gr. @ 60°F. | |
| 3. Sp. Gr. @ flowing temperature | |
| C. Steam | |
| 1. Saturated or Super Heated | |
| 2. Temperature | |
| 3. Pressure | |

**RAISED FACE ORIFICE FLANGES**

Meriam offers many styles of orifice flanges to meet the requirements of every type of flow metering application. Meriam Standard Orifice Flanges meet all AGA specifications to insure high accuracy. Double meter connections are correctly located for flange taps.

They are sold in pairs, complete with two gaskets and the necessary nuts and bolts. Flanges of special materials and specifications can be supplied.

FLANGE MODEL	Line Size in Inches																					TANG PLATE MODEL
		$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12	14	16	18	20	24		
952IT25 Threaded	Cast Semi Steel 250 lb.																					951A25
952FT30 Threaded	Forged Steel 300 lb.																					951B30
952FS30 Slip-on	Forged Steel 300 lb.																					951B30
952FW30 Welding Neck	Forged Steel 300 lb.																					951B30
952BT25 Threaded	Brass 250 lb.																					951A25
952BS15 Slip-on	Brass 150 lb.																					951D15
952CT15 Threaded	Companion Forged Steel 150 lb.																					951C15

TO ORDER FLANGES . . . SPECIFY: 1. QUANTITY 2. MODEL NUMBER AND DESCRIPTION 3. LINE SIZE

COLOR INDICATES AVAILABILITY

AIRCRAFT INSTRUMENT CALIBRATING MANOMETER

MODEL 30PA10TM

is a multiple scale, table mount 61 inch well type manometer. Widely used in pairs for aircraft instrument calibration, eight different scales can be selected and positioned directly behind the indicating tube by simply turning a knob. Standard or special scales for water or mercury are available for applications such as calibration of manifold pressure gauges, air speed indicators and transducers, altimeters, altitude transducers, air actuated switches, etc.

A Meriam float check valve eliminates fluid loss from pressure surges.

Range in Inches: 61

AVAILABLE STANDARD SCALES

Using Mercury Corrected to 0° C. for Observed Temperature of 22° C.

- C-1300—Lbs. and tenths, 0-30 lbs. Altitude scales to 200,000 feet
- C-1301M—Inches and 1/10ths, 0-61". C-1499—Minus 1000' to 200,000' (bar. range 787-735 mm)
- C-1302—Inches and 1/10ths, 31"-0. C-1500—Plus 1000' to 200,000' (bar. range 734-683 mm)
- C-1303—Inches and 1/10ths above barometer, 28"-89". C-1501—Plus 3000' to 200,000' (bar. range 682-634 mm)
- C-1304—Gms and mms, 80-0 cm. C-1890M—Cms and mms, 0-156 cm.
- C-1305—MPH airspeed, 250-750 MPH.
- C-1306—Knots, 200-600 knots

Using Water Corrected to 4° C. for Observed Temperature of 22° C.

- C-1301W—Inches and 1/10ths, 0-61". C-1317—Lbs. and hdths, 0-2.20 lbs.
- C-1315—MPH, 0-344. C-1890W—Cms and mms, 0-156 cm.
- C-1316—Knots, 0-295.

Special Scales to Specifications.

SELF CONTAINED . . . FOUR INSTRUMENT CAPACITY VACUUM CHAMBER
MODEL A-900

is a completely self-contained unit for testing and pressurizing altimeters, rate of climb indicators, aneroid barometers and other instruments operating from changes in barometric pressure. Outstanding features include removable universal mounting plate that accommodates 4 aircraft instruments . . . pressure-vacuum pump, vibrator and controls. All electrical equipment is 110-volt, 60 cycle service.



MODEL
A-900

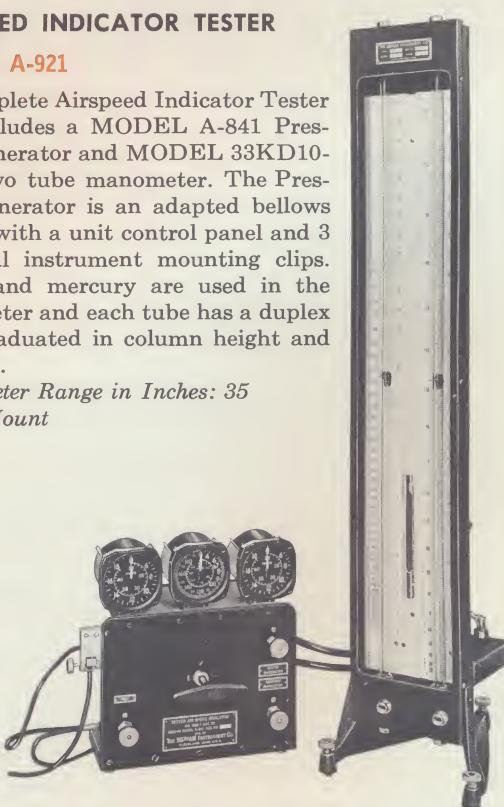
MODEL 310ED10TM
Absolute Pressure
Manometer Calibrating
Standard

AIRSPED INDICATOR TESTER
MODEL A-921

is a complete Airspeed Indicator Tester that includes a MODEL A-841 Pressure Generator and MODEL 33KD10-2TM two tube manometer. The Pressure Generator is an adapted bellows system with a unit control panel and 3 universal instrument mounting clips. Water and mercury are used in the manometer and each tube has a duplex scale graduated in column height and airspeed.

Manometer Range in Inches: 35

Table Mount



Additional Information on Specifications, Accessories and Prices Available on Request

Meriam Inclined Manometers in both single and multi-tube models utilize expanded scales to provide unusual sensitivity and fast, easy reading with increased accuracy and reliability. They are available in simple forms as well as extreme precision inclinometers. All Meriam Inclined Manometers have a bubble level and precision leveling screws.

ALUMINUM . . . FOR LOW PRESSURES AND LOW DIFFERENTIALS

MODEL 40GD10

is an inclined tube manometer with expanded scale offering high sensitivity and greater readability to measure low pressures, draft or small differential pressure changes in gas flow metering. A wide range of accessories is available when specified.

Range in inches of water using Meriam D-2673 fluid, specific gravity 0.827: $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, 3, and 4.

Mounting: WM, FF, TM with 912A Table Mounting Stand.

Max. Line Pressure 100 PSI



SEMI STEEL . . . WIDE APPLICATION IN FLOW METER SERVICE

MODEL 40GF15

is an inclined tube manometer with high sensitivity and greater readability used to measure differential pressure changes in steam, gas and other fluid flow metering. Complete with three valve piping manifold and any desired flow scale.

Range in inches of water using Mercury: 25" and 50". Drop leg for over range protection is available.

Mounting: WM, FF

Max. Line Pressure 150 PSI



ALUMINUM . . . FOR LOW DIFFERENTIALS

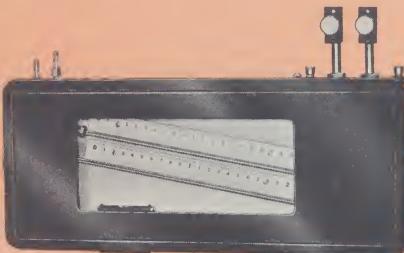
MODEL 43GD10

is a two tube inclined manometer that is used to measure and compare two low pressures or drafts. In furnace operation this related data is important to assure maximum combustion economy. A wide range of accessories is available when specified.

Range in inches of water using Meriam D-2673 fluid, specific gravity 0.827: Both tubes 2".

Mounting: WM, FF, TM with 912A Table Mounting Stand.

Max. Line Pressure 100 PSI



STAINLESS STEEL CONSTRUCTION . . . HIGH PRESSURE

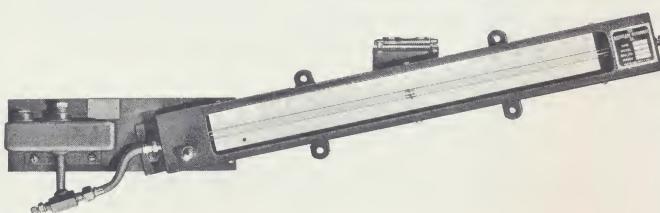
MODEL 40FA350WM

is a high pressure inclined tube well type manometer. It is designed for very low differential pressure measurements in systems operating up to 3500 psi. Ruggedly constructed it has simple maintenance features employing flanged unions and "O" ring seals. Research and industry depend on its accuracy, sensitivity and dependability to measure pressure drops across components in high pressure systems. It is permanently installed for continuous calibration of recording meters in high pressure systems.

A three valve manifold assembly and/or return well is a recommended accessory.



Large movement of meniscus for small pressure change



EXPANDED SCALE... SENSITIVE

MODEL 40HE35

is an inexpensive inclined manometer with a broad choice of ranges and scale lengths. Each instrument is individually calibrated. The front adjustable scale behind the indicating tube is full width of the channel for better readability. Stainless steel construction. A wide range of accessories is available as required also raised well.

Mounting: WM, FF

Max. Line Pressure 350 PSI

RANGES AND SCALES

Scale Length	Range in inches with Scale graduated inches and hundredths	Range in inches with Scale graduated inches and fiftieths
20"	2", 4"	6", 8", 10"
30"	4", 6", 8"	10", 12", 14"
40"	4", 6", 8", 10"	12", 14", 16", 18", 20"
50"	4", 6", 8", 10", 12"	14", 16", 18", 20"
60"	6", 8", 10", 12", 14"	16", 18", 20"



LONG SCALE, PRECISION

MODEL 40HA10

provides high reading accuracy at moderate cost. Precision bore tube is supported and maintained in the proper plane on a steel straight edge. This extremely sensitive inclined manometer provides convenient, accurate readability. It is calibrated inch by inch for the full scale range. Stainless steel construction. Fluorescent lighting can be provided on the 48" model—flush front instrument for panel mounting.

Max. Line Pressure 100 PSI

Scale Length	Range in inches with Scale graduated inches & hundredths	Range in inches with Scale graduated inches & fiftieths	Mounting
30"	4", 6", 8"	10", 12", 14", 16"	WM only
48"	4", 6", 8", 10"	12", 14", 16"	WM & FF Fluorescent lighting available in FF only.

MERIAM INCLINOMETERS FOR ULTRA PRECISION



BAROMETRIC AND TEMPERATURE COMPENSATOR

MODEL 44HC10

Meriam Inclinometer is a precision calibrated instrument for extremely accurate air flow measurement. 6 inch differential is expanded on the 48 inch scale graduated inches, tenths, and hundredths. Barometric pressure and temperature corrections are automatically made by setting the compensator which is directly graduated from 28 inches to 31 inches mercury absolute and in degrees temperature from 30 deg. F. to 160 deg. Readings therefore are at base conditions of 29 inches of mercury and 80 deg. F. when the compensator is set to the prevailing conditions. A fourteen sided scale drum is indexed to position any desired scale behind the large precision bore glass indicating tube which is firmly supported on a steel straight edge.

Fluorescent lighting can be furnished when specified.

Range: 6 inches at 29 inches HgA and 80 deg. F.

Scales for any requirements are available.

Mounting: WM or FF



WIDE RANGE COMPENSATOR

MODEL 44HD10WM

Meriam Inclinometer is similar in all respects to the Model 44HC10 but provides a greater range of barometric pressure and temperature compensation. Differential charts are furnished with each instrument which span a range of 17.1 inches to 64 inches of mercury absolute and minus 80 deg. F. to plus 160 deg. F. The compensator makes a vernier adjustment of the vertical differential from 3 inches to 7½ inches. Readings therefore are at base conditions of 29 inches of mercury and 80 deg. F.

Fluorescent lighting can be furnished when specified.

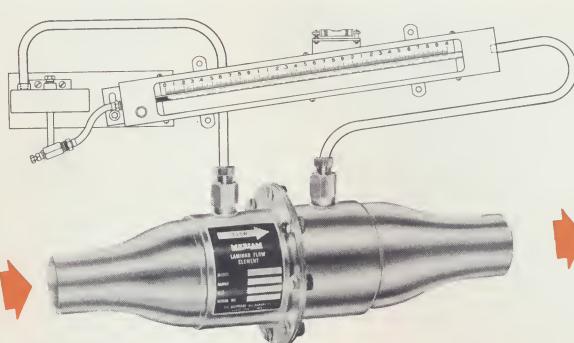
Range: 6 inches at 29 inches HgA and 80 deg. F.

Scales for any requirements are available.

Additional Information on Specifications, Accessories and Prices Available on Request

**LINEAR DIFFERENTIAL
GAS FLOW
MEASUREMENT**

Possible 100 to 1 Range



HOW TO ORDER—SPECIFY:

1. Model Number.
2. Connection size or type.
3. Flowing fluid data—
 - a. Flow Rate (SCFM)
 - b. Pressure
 - c. Temperature
 - d. Specific gravity & viscosity if other than air
4. Meriam manometer & accessories.

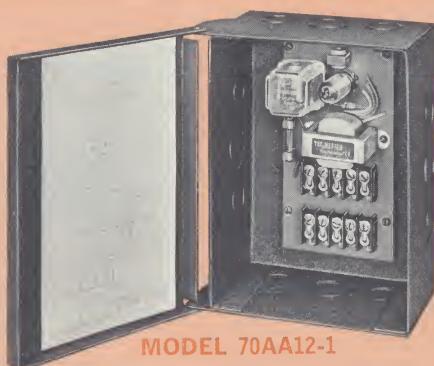
Meriam Laminar Flow Elements are complete primary flow measuring units. They produce a LINEAR pressure differential proportional to flow. Using a Meriam wide-range manometer, flow ranges of 100 to 1 can be measured. Each unit is individually calibrated to a precise Meriam flow standard.

The Meriam Laminar Flow Elements are designed to accurately measure . . .

- * Air flow intake of internal combustion engines.
- * Air flow from fans and blowers.
- * Pressure drop in valves, filters and air ducts.
- * Leakage rate from system enclosures, airplane cabins, etc.
- * Low pressure air and gas flows to furnaces.
- * Calibration of recording instruments.

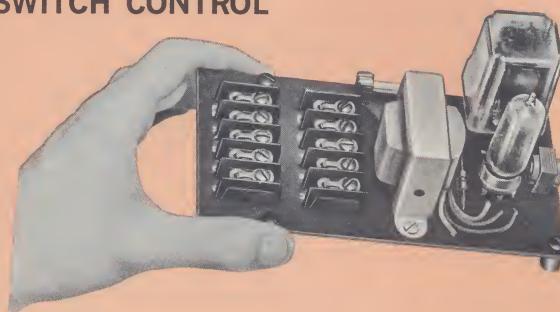
Meriam Laminar Flow Elements are available in many sizes. Likewise, there are wide flow ranges from a few cubic centimeters per minute to thousands of cubic feet per minute. Meriam accessories, including accurate indicating manometers, fulfill every requirement.

MODEL AND DESCRIPTION	CON- NEC- TION	TYPE	MODEL	NOMINAL AIR FLOW RANGE	
				WATER DIFFERENTIAL 4 INCHES	8 INCHES
 MODEL 50MC2 for systems of maximum 20 psig and 150°F. Complete with either filter, straighteners or Piezometer rings where desired. Spun aluminum housing for hose connections. For flange connections specify Model 50MR2.	2" 4" 6" 8"		50MC2 50MC2 50MC2 50MC2	50 SCFM 200 " " 500 " " 1000 " " 1000 " "	100 SCFM 400 " " 1000 " " 2000 " "
 MODEL 50MH10 For 100 psig pressure and 150°F. maximum. Stainless steel pipe with Threaded connections	3/4" 1" 1 1/4" 1 1/2" 2" 3" 4" 5" 6"		50MH10 50MH10 50MH10 50MH10 50MH10 50MH10 50MH10 50MH10 50MH10	1.6 SCFM 3.5 " " 7.5 " " 10 " " 20.0 " " 45.0 " " 80.0 " " 125.0 " " 190.0 " "	3.2 SCFM 7.0 " " 15.0 " " 20.0 " " 40.0 " " 90.0 " " 160.0 " " 250.0 " " 380.0 " "
 MODEL 50MJ10 For 100 psig pressure and 150°F. maximum. Stainless steel with 3/8" NPT connections	5/8" 5/8" 5/8" 5/8" 5/8" 5/8"	10 11 12 13 14	50MJ10 50MJ10 50MJ10 50MJ10 50MJ10	.75 SCFM .40 " " .20 " " .10 " " .05 " "	1.5 SCFM .80 " " .40 " " .20 " " .10 " "
 MODEL 50MK10 For 100 psig pressure and 150°F. maximum. Stainless steel with 1/8" NPT connections	1/8" 1/8" 1/8" 1/8" 1/8" 1/8" 1/8" 1/8" 1/8"	1 2 3 4 5 6 7 8 9	50MK10 50MK10 50MK10 50MK10 50MK10 50MK10 50MK10 50MK10 50MK10	.0463 SCFM .0174 " " .0081 " " .0040 " " .0023 " " .0008 " " .0004 " " .0001 " " .00005 " "	80 SCIM 30 " " 14 " " 7 " " 4 " " 1.5 " " 0.7 " " 0.25 " " 0.1 " "



MODEL 70AA12-1

SENSITIVE ELECTRONIC SWITCH CONTROL



The Meriam MANOTAC electronic switch control provides relay contact switching for electrical power to alarms, motor operation, or other devices. Actuated by pin point continuity of Manometer contact rods with the indicating fluid it has extremely fast response. Sensitive to an input resistance match, the contactor manometer can use Meriam D-2930 fluid specific gravity 1.00 or

mercury. Pressure changes of .005" or .003 ounces per square inch are easily detected in a 6" range to a 60" range manometer. It is designed for fail-safe operation in case of power or component malfunction. If desired it can be remotely located from the contact manometer or other sensing element. It is normally supplied in 1, 2, or 3 units mounted in an electrical enclosure.

STANDARD INDICATING FLUIDS



Operation of a manometer is based on the balancing of an unknown against a known. The unknown is the pressure being measured; the known is the specific gravity and column height of the indicating fluid. For this reason, the quality and characteristics of the indicating fluid must be carefully controlled.

Indicating fluids determine the *measurement range* for a given *instrument range*. For example, a manometer with an instrument range of 60 inches will be capable of measuring pressures up to 1.782 psig using Meriam Red Oil (Specific Gravity 0.827); or pressures up to 29.358 psig using mercury (Specific Gravity 13.54).

Meriam Indicating Fluids have been developed which provide a broad range of densities with acceptable characteristics in regard to viscosity, surface tension and vapor pressure. With Meriam Indicating Fluids, you are assured of a reliable standard of measurement.

Trade Name	Spec. No.	Color	Specific Gravity	Description	Ordering Quantities
Meriam Red Oil	D-2673	Red	0.827 at 60°F. compared with water at 4°C.	A highly refined mineral seal oil. Non-corrosive. For use where a light fluid is required and extremes are not encountered. Useful temperature range 40°F. to 120°F.	Available in $\frac{1}{2}$ pints, pints, quarts, and gallon containers.
Meriam Indicating Fluid Concentrate	D-2930	Green	1.000	Specially prepared concentrate for high precision work. Non-corrosive to brass, glass, or stainless steel. Low surface tension. Hysteresis practically zero. Keeps indicating tube clean. Not for use under freezing conditions.	Prepared in concentrate form in 3-ounce bottle sufficient to make one quart of fluid.
Meriam Unity Oil	D-2969	Red	1.00 at 73°F. compared with water at 4°C.	A mineral seal oil mixture prepared for general use from 30°F. to 100°F. where a fluid near the specific gravity of water is desired and water is unsuitable.	Available in $\frac{1}{2}$ pints, pints, quarts, and gallon containers.
Meriam Indicating Fluid	D-3166	Red	1.04 at 83°F. compared with water at 4°C.	Specially suited to high vacuum applications. Teflon gasketing recommended. Non-corrosive. Insoluble in water. Useful temperature range 20°F. to 150°F.	Available in $\frac{1}{2}$ pints, pints, quarts, and gallon containers.
Meriam Indicating Fluid	D-7878	Light Straw	1.20 at 77°F. compared with water at 4°C.	A specially prepared oil particularly suited for general outdoor work. At elevated temperatures, corrosive to brass and aluminum. Useful range 10°F. to 150°F.	Available in $\frac{1}{2}$ pints, pints, quarts, and gallon containers.
Meriam Indicating Fluid	D-8325	Blue	1.75 at 55°F. compared with water at 4°C.	Extremely stable. For use in manometers and flowmeters. Low viscosity, non-freezing, non-flash. Insoluble and clear interface in water. Useful range 70°F. to 150°F.	Available in $\frac{1}{2}$ pints, pints, and quart containers.
Meriam No. 3 Fluid	D-2883	Red	2.95 plus or minus 0.002 at 78°F. compared to water at 4°C.	A heavy bromide. Non-flashing. All parts in contact with this fluid must be brass, glass, or stainless steel. Corrosive to steel. Useful temperature range 40°F. to 100°F.	Order by the pound.
Meriam Hi-Purity Mercury	D-2913	Silver	13.54 at 73°F. compared with water at 4°C.	Specially treated for highest purity. Used in all applications where greatest density is required for maximum range and where chemical reaction is not encountered. Cannot be used in aluminum or brass instruments.	Order by the pound.

Additional Information on Specifications, Accessories and Prices Available on Request

PRESSURE-VACUUM VARIATOR

MODEL 971A3

this model finds wide application in the instrument shop, laboratory, field test facility, in fact wherever auxiliary pressure sources are not available or where sensitive pressure adjustment is advantageous.

Unit mounts behind panel with shaft extending through front. Three $\frac{1}{4}$ " NPT connections tap on rear. Pulls 20" of mercury on closely coupled systems. Recommended for static pressures up to 30 psig.

Mounting: RB as shown and TM.



VERNIER VARIATOR

MODEL 971B3

the vernier attachment operates on the same principle as the 971A3 Pressure-Vacuum Variator with which it is used. It has a small capacity and adjustments can be made in very minute increments.



PULSATION ABSORBERS

MODEL 973A300 (Max. 3,000 PSI)

MODEL 973A1000 (Max. 10,000 PSI)

these devices prevent hammering and pulsations in gauge lines. This makes possible more accurate reading and protects the gauge. When ordering specify (1) type of liquid or gas handled (2) average line pressure (3) pulsations per minute (4) magnitude of fluctuations (5) connection size.



FLOAT CHECK VALVES

A Meriam float check valve should be installed at the low pressure connection of every manometer unless a return well is used. The float check valve does not interfere in any way with responsiveness or accuracy of the measurement but does prevent loss of fluid should overpressures occur.

MODEL 942K50 is a most valuable accessory small enough to be installed on each tube of a multiple tube manometer, yet fully dependable. Normal operation of the manometer is not impaired by vertical installation of the float check valve. If pressure increases beyond the instrument range the valve closes preventing the fluid from leaving the manometer. The valve opens when normal pressure is restored. Maximum operating pressure is 500 psig.

MODEL 942KW50 is designed for mercury under-water applications up to 500 psig line pressure.

MODEL 942V35 is available with PVC body and Teflon float. Maximum operating pressure is 350 psig.



RETURN WELLS are used to prevent loss of indicating fluid from over range or surge conditions. They are primarily used on differential pressure applications such as flow metering. Return wells should be installed at the well when a severe reverse condition may be experienced. All Meriam return wells are designed with proper capacity and internal baffles to provide positive protection. All return wells have black crackle finish.

MODEL 934EA15 For use with Model 30EA15 Manometer

This return well of either semi-steel or brass can be used with all ranges of manometer MODEL 30EA15 at operating pressures of up to 150 psig. Brass must be specified if return well is to be used with Meriam No. 3 fluid.



MODEL 934G50 For Multi-Tube Manometers

This model is available in steel and stainless steel and is for use on manometers up to 50" range with operating pressures up to 500 psig.

Model 934H50 for manometers above 50" range.



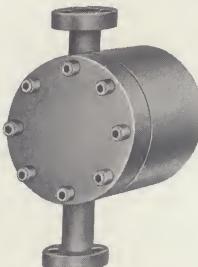
MODEL 934D25 For Most Single Tube Manometers

This model is available in steel and stainless steel for maximum operating pressures of 250 psig. It is furnished with $\frac{1}{4}$ " NPT vent connection in addition to fill plug. It has a large capacity and is of all welded construction.



MODEL 934K350 For High Pressures

This return well available in stainless steel only is for use with high pressure well type manometers such as 30FA350 and incline manometers such as 40FA350 (include angle fitting part no. 911E350) under operating pressures up to 3500 psig.



SIGHT FEED BUBBLERS

Meriam sight feed bubblers provide a visual flow indication by showing air or gas bubbles discharging from a dip tube, immersed in liquid, in a transparent bowl. The bubble rate is controlled by a stainless steel needle valve in the head casting.



MODEL 931R Ring Type
Bubbler with $\frac{1}{4}$ " NPT Side Connections

This sight feed bubbler consists of a transparent heavy walled $2\frac{1}{4}$ " diameter bowl, a cast brass or semi-steel body and a stainless steel needle valve. A screw retained ring secures the bowl of either plastic or glass.



MODEL 931S Strap Type
Bubbler with $\frac{1}{4}$ " NPT Rear Connections

This sight feed bubbler is a strap type with rear connections in the head of either cast brass or semi-steel. A cast swing strap with clamp screw retains the bowl of either glass or plastic.

SPECIFY MODEL AND TYPE WHEN ORDERING

Model	Type	Material of Body	Material of Bowl	Working Pressure
931R5	CG	Semi-steel	Glass	50 psi
931R10	CP	Semi-steel	Plastic	100 psi
931R5	BG	Brass	Glass	50 psi
931R10	BP	Brass	Plastic	100 psi
931S5	CG	Semi-steel	Glass	50 psi
931S10	CP	Semi-steel	Plastic	100 psi
931S5	BG	Brass	Glass	50 psi
931S10	BP	Brass	Plastic	100 psi

LINE TRAPS

Line traps are an inexpensive means to keep manometers clean and are recommended for all installations. When installed in the line ahead of the manometer they permit entrained solids to settle out before they reach the manometer. When used with gases or vapors they trap moisture. It pays to keep both the indicating fluid and manometer from being contaminated.



MODEL 932R
Bowl—Ring Type

This line trap has cast brass or semi-steel head with $\frac{1}{4}$ " NPT side connections. A screw retained ring secures a transparent bowl of either plastic for 100 psi service, or glass rated at 50 psig.



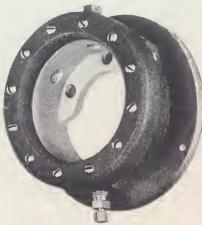
MODEL 932S
Bowl—Strap Type

This line trap is available with cast brass or semi-steel head with $\frac{1}{4}$ " NPT back connections, a cast swing strap with clamp screw retains a bowl of either plastic for 100 psi service, or glass rated at 50 psig.

SPECIFY MODEL AND TYPE WHEN ORDERING

Model	Type	Material of Body	Material of Bowl	Working Pressure
932R5	CG	Semi-steel	Glass	50 psi
932R10	CP	Semi-steel	Plastic	100 psi
932R5	BG	Brass	Glass	50 psi
932R10	BP	Brass	Plastic	100 psi
932S5	CG	Semi-steel	Glass	50 psi
932S10	CP	Semi-steel	Plastic	100 psi
932S5	BG	Brass	Glass	50 psi
932S10	BP	Brass	Plastic	100 psi

MODEL 933A10
Moisture and Sediment Trap



Three $\frac{1}{4}$ " NPT connections are provided; one on each side for the manometer line, one at the bottom for drainage. Construction is aluminum. Maximum operating pressure is 100 psi.

Mounting: WM, FF

MODEL 935A5
Drip Indicator



Provides visual check of shut off valve leaks, blowout disc rupture, gravity fluid feed, and bleed (Max. 50 PSI) $\frac{1}{4}$ " NPT.

MODEL 935B15 (Max. 150 PSI)



MODEL 931A35 High Pressure Bubbler

This sight feed bubbler consists of a body machined from solid steel or stainless steel billet and carries a heat treated glass cover in secure assembly, with an additional plastic guard cover. High pressure forged valve, controls bubble rate. Connections are $\frac{1}{4}$ " NPT.

Mounting: WM



MODEL 932A35 High Pressure Line Trap

This line trap consists of a body machined from a solid steel or stainless steel billet and carries a heat treated glass cover secured with clamp ring for easy clean out. An additional plastic cover guard provides further protection. Connections are $\frac{1}{4}$ " NPT.

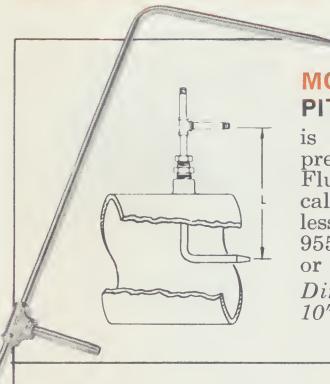
Mounting: WM

Additional Information on Specifications, Accessories and Prices Available on Request

MANOMETERS

SERIES 900

ACCESSORIES



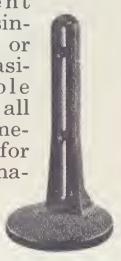
MODEL 955A15 PILOT TUBE

is a primary element for velocity pressure in air, gas, or liquid flow. Fluid velocity and volume flow by calculation or reference curve. Stainless steel construction. Use of gland 955G permits easy traverse of duct or pipe.

Dimension L ($\frac{1}{2}$ pipe dia. + 4")
10", 15", 20", 25", 30", 35", and 40".

MODEL 912A APPARATUS STAND

this heavy duty semi-steel mounting stand carries $\frac{5}{16}$ inch vertical slot for any location of equipment mounting bolts. Used singly or in pairs, shop or laboratory devices are easily converted to table mount. It is used for all Meriam U-Type manometers up to 50" range and for all cast bodied incline manometers.



PIPE MOUNT BRACKET

MODEL 912EA
for use with Model 30EA15 manometers.



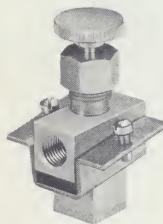
MODEL 912EB
for use with Model 30EB25 and most other similar models with 3" wide bodies. Use one bracket on ranges up to 30" and two brackets for 30" and up.
Brackets threaded 1" female NPT complete with screws.



MODEL 912S

PIPE SADDLE

is a heavy duty, U-bolt saddle for supporting 1" nipple from existing pipe (individual sizes 1" to 8") complete with a 4" long nipple.



MODEL 941A35

MICROMETERING VALVE

provides critical straight-line control and reproduces low flow rates. Special stem design gives control with soft seat shut off. Excellent for use in calibration. All brass-nickel plated complete with panel mount bracket and screws. In $\frac{1}{8}$ " and $\frac{1}{4}$ " NPT.



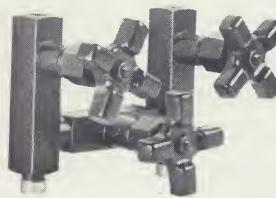
MODEL 941C200

ANGLE VALVE

has stainless stem and disc with body and seat steel bar stock. For test units and instrument shop calibrating benches. Provides leak free shut-off up to 2000 psig. Mounts from rear of panels up to 1" thick.

MODEL 943F100

THREE-VALVE MANIFOLD ASSEMBLY



assembly provides high and low pressure shut off and bypass for zero check and maintenance. Uses $\frac{1}{4}$ " NPT valves with spoked hand-wheels and is fitted to the meter with two unions. Available in stainless steel and steel. Model 943F400 assembly is for higher pressure applications and uses heavy duty $\frac{1}{2}$ " NPT valves.



MODEL 944A4

VENTING PETCOCK

is of tapered plug design and when shut off, vents male end out through hole in body. Brass, nickel plated in $\frac{1}{8}$ " and $\frac{1}{4}$ " NPT.



HOSE NIPPLES

MODEL 911A male $\frac{1}{8}$ " and $\frac{1}{4}$ " NPT.

MODEL 911B female $\frac{1}{8}$ " NPT.

Nickel plated brass with deep annular rings.



STREAM-FLOW DRAIN VALVE

Solid stream without splattering is a standard feature of most Meriam manometers.

MODEL 944V50

VENT VALVE

Simplify venting systems.

MISCELLANEOUS ACCESSORIES

TUBING Tygon or Rubber

Model 913R—Rubber tubing, $\frac{1}{4}$ " I.D. x $\frac{1}{2}$ " O.D.

Model 913T—Tygon tubing, $\frac{1}{4}$ " I.D. x $\frac{3}{8}$ " O.D.

TUBING

Metal or Hard Rubber $\frac{1}{4}$ " O.D. Specify copper, brass, carbon steel, stainless steel, nickel or hard rubber. Other materials available on request.

PLUGS

Model 914A—Hex head, available in $\frac{1}{8}$ " and $\frac{1}{4}$ " NPT.

Model 914B—Vent, hex head, $\frac{1}{4}$ " NPT.

CLEAN-OUT BRUSHES

Model 915A—This brush is used for all manometers having a tube bore of approximately 0.200".

Model 915B—This brush is used for manometers having a tube bore of $\frac{1}{16}$ ".

NOTE: Brush handles range in length from 6" to 150". Order proper length handle by specifying the manometer range in inches.

ALUMINUM SLIP-ON COVERS

Model 915C—Fits Model 10AA25 U-Type manometer. Specify manometer range in inches when ordering.

MAGNETIC AND PHOTO ELECTRIC DIGITAL PULSE GENERATORS

Meriam "Multi-path" variable reluctance and "zero-speed" photo electric digital pulse generators are designed to convert rotative motion into digital logic. This information is used with electronic instrumentation and digital computers to *indicate and/or control* processes which involve rate as material speed and draw, linear measurement, positioning, synchronizing, or any application that requires the monitoring of rate to a high degree of accuracy and resolution by digital means.

These units are available in designs for use in hazardous as well as non-hazardous locations.

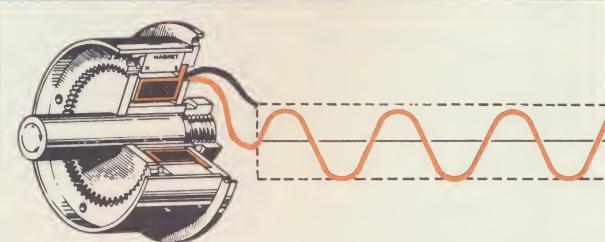
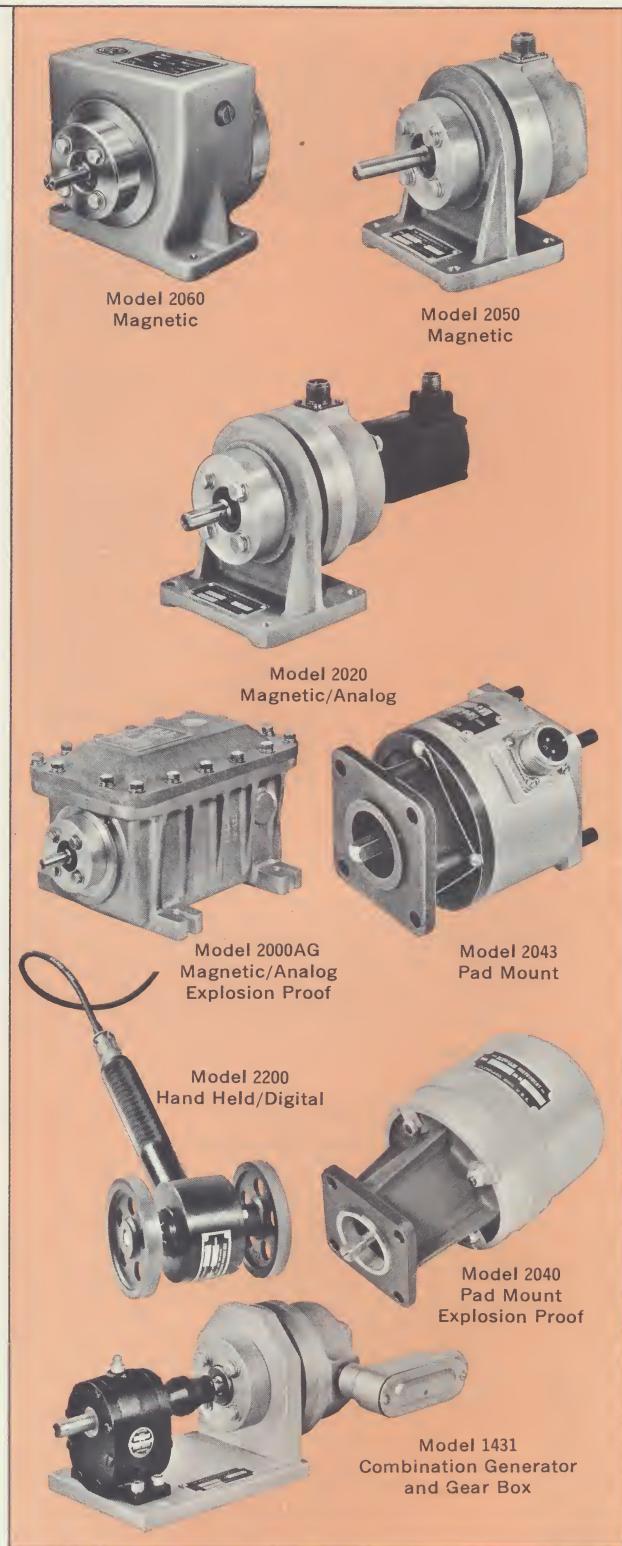
Meriam self-generating, magnetic generators are furnished with 60, 120, 180 or 240 impulses per revolution. These units are applicable for use in installations in a range between 50 and 7500 rpm. Special versions of the magnetic units are available for mounting on engine pads . . . applicable to aircraft and automotive applications. Meriam also has available units that provide digital information concurrent with analog monitoring. This is accomplished by tandem mounting a three phase tachometer generator with the magnetic digital pulse generator.

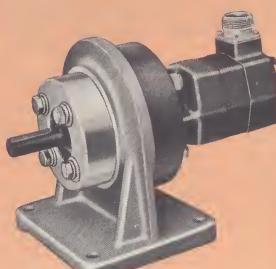
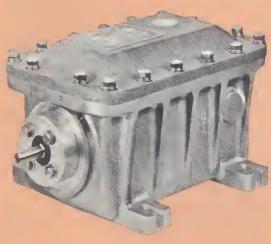
Meriam photo-electric "zero-speed" generators are supplied with 60, 100, 120, 200, 240, 300 or 360 impulses per revolution. Special frequencies are available between 1 and 600 impulses per revolution. The photo-electric unit can be supplied in a bi-directional dual quadrature output version. Essential to the configuration of the output, signal is square wave and limited in the range from zero to 40,000 cps.

ACCESSORIES

Combination pulse generator and gear type speed increaser standard ratios 2:1, 3:1, 5:1 and 10:1.

Model 2200 hand held dual wheel portable digital pulse generator.



Model 335
3" Electric IndicatorModel 635
6" Electric IndicatorThree Phase
Tachometer Generator,
Pad MountModel 2030
3-phase, electric
generator assemblyModel 2010
Explosion proof,
3-phase electric
generator assemblyModel 635
6" Electric Indicator
in Model D-141
explosion proof housingSpeed increaser/decreaser
for 3-phase generator

METER TYPE RATE INDICATING SYSTEMS

Meriam self-generating, synchronous motor, meter type rate indicating systems consists of (1) indicator, (2) generator and (3) speed changer (if required). This system provides the means to monitor and indicate rate in increments of FPM, RPM, YPM, GPM or any rate or quantity directly related to shaft rotation.

This Meriam system is particularly applicable to processes involving paper machines, plastic film machines, ferrous and non-ferrous rolling mills, material handling systems, pumps, motors or compressors which demand continuity of process to assure uniformity of the product.

These units are available in designs for hazardous as well as non-hazardous locations or atmospheres.

Meriam electric indicators are multi-turn, $3\frac{1}{2}$ revolutions of pointer, magnetic drag disc precision electrical instruments. A high degree of readability and resolution is assured because of the expanded scale, 1260 degrees, over a wide operating range. As a result, accuracies of better than 0.3 of 1% of scale, within the linear range are accomplished. When operating with an appropriate three phase tachometer generator it will provide direct indication of flow, linear length or speed.

Meriam 3-phase generator assemblies are designed to be compatible with the extreme conditions encountered in industrial process applications and in accordance with military specifications. The unit generates a signal frequency proportional to rotative motion for the remote operation, nominal to 500 ft., of Meriam synchronous motor magnetic drag disc rate indicators.

ACCESSORIES

Explosion proof Class I Group D housings available for models 635 & 335.

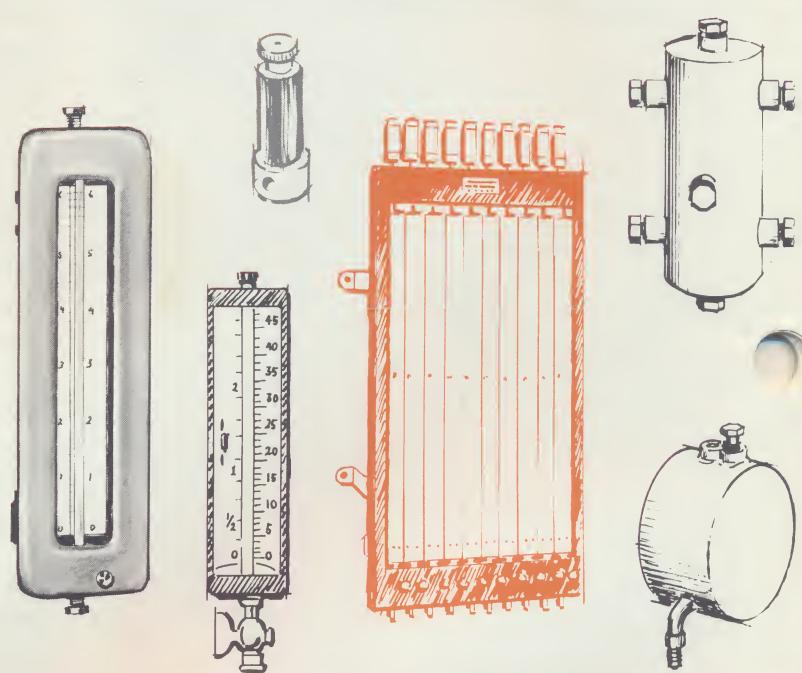
Instrument vibrators to overcome meter movement hysteresis.

Gear type speed increasers.

MERIAM

MANOMETERS

... always accurate



THE MERIAM INSTRUMENT COMPANY
10920 MADISON AVENUE, CLEVELAND, OHIO 44102 USA